

WHAT IS CLAIMED IS:

1. A thermal fixing device comprising:

a fixing member disposed to be in contact with a fixation medium;

5 a heating unit configured to heat the fixing member with power supplied thereto;

a supporting unit configured to movably support the fixing member and to move the fixing member when the fixing member is overheated by the heating unit;

10 a switch disposed to be in contact with the fixing member when the fixing member is moved by the supporting unit, and configured to mechanically cut off the power supplied to the heating unit when the switch contacts with the fixing member; and

15 a thermal cutoff unit having a bimetal in which deforms by heat, disposed to face the fixing member, and configured to cut off the power supplied to the heating unit by deformation of the bimetal.

2. The thermal fixing device as claimed in claim 1, wherein
20 the switch mechanically deforms the bimetal to cut off the power supplied to the heating unit.

3. The thermal fixing device as claimed in claim 1, wherein the switch is configured to become in non-contact with the fixing member when the fixing member is not overheated.

25 4. The thermal fixing device as claimed in claim 1, wherein

the fixing member comprises a fixing roller, and

wherein the switch is disposed at a position upstream of the thermal cutoff unit with respect to a rotation direction of the fixing roller.

- 5 5. The thermal fixing device as claimed in claim 1 further comprising a pressing member configured to urge the fixing member towards the switch,

wherein the supporting member comprises a bearing member that allows the pressing member to move the fixing member when
10 the bearing member is softened by the overheat.

6. The thermal fixing device as claimed in claim 5, wherein the pressing member comprises a pressure roller that holds the fixation medium against the fixing member, and

wherein the switch is configured to be in contact with an
15 opposite side of the fixing device with respect to the pressure roller.

7. The thermal fixing device as claimed in claim 1, wherein the thermal cutoff unit comprises a housing that contains the bimetal and the switch.

- 20 8. The thermal fixing device as claimed in claim 1, wherein the thermal cutoff unit comprises a housing that contains the bimetal, and

wherein the switch is disposed separately from the housing.

9. A thermal fixing device comprising:

25 a fixing member disposed to be in contact with a fixation

medium;

a heating unit configured to heat the fixing member with power supplied thereto; and

a thermal cutoff unit having a bimetal that is deformed
5 by heat and exposed toward the fixing member to be in contact therewith without intermediary of air, and configured to cut off the power supplied to the heating unit by deformation of the bimetal.

10. The thermal fixing device as claimed in claim 9, wherein
10 the bimetal is configured to be in direct contact with the fixing member.

11. The thermal fixing device as claimed in claim 9, wherein the fixing member has a fixation area that is to be in contact with the fixation medium, and

15 wherein the bimetal is configured to be in contact with the fixation area of the fixing member.

12. The thermal fixing device as claimed in claim 9 further comprising a supporting unit configured to movably support the fixing member,

20 wherein the fixing member is configured to be in contact with the bimetal through the movement thereof due to the overheat, and is configured to cut off the power supplied to the heating unit by contacting with the bimetal.

13. The thermal fixing device as claimed in claim 9, wherein
25 the bimetal is configured to become in non-contact with the fixing

member when the fixing member is not overheated.

14. The thermal fixing device as claimed in claim 9, wherein the bimetal comprises a projection configured to be in contact with the fixing member.

5 15. The thermal fixing device as claimed in claim 9 further comprising a pressing member configured to urge the fixing member towards the bimetal and comprises a pressure roller that holds the fixation medium against the fixing member,

wherein the supporting member comprises a bearing member
10 that allows the pressing member to move the fixing member when the bearing member is softened by the overheat, and

wherein the bimetal is configured to be in contact with an opposite side of the fixing device with respect to the pressure roller.

15 16. The thermal fixing device as claimed in claim 9, wherein the bimetal is configured to be in contact with the fixing member through a heat conductive member having a high thermal conductivity.

17. The thermal fixing device as claimed in claim 16, wherein
20 the fixing member has a fixation area that is to be in contact with the fixation medium, and

wherein the heat conductive member is configured to be in contact with the fixation area of the fixing member.

18. The thermal fixing device as claimed in claim 16 further
25 comprising a supporting unit configured to movably support the

fixing member,

wherein the fixing member is configured to be in contact with the heat conductive member through the movement thereof due to the overheat, and is configured to cut off the power supplied to the heating unit by contacting with the heat conductive member.

19. The thermal fixing device as claimed in claim 16, wherein the heat conductive member is configured to become in non-contact with the fixing member when the fixing member is not overheated.

20. The thermal fixing device as claimed in claim 16, wherein the heat conductive member comprises a projection configured to be in contact with the fixing member.

21. The thermal fixing device as claimed in claim 16 further comprising a pressing member configured to urge the fixing member towards the switch or the bimetal and comprises a pressure roller that holds the fixation medium against the fixing member,

wherein the supporting member comprises a bearing member that allows the pressing member to move the fixing member when the bearing member is softened by the overheat, and

wherein the heat conductive member is configured to be in contact with an opposite side of the fixing device with respect to the pressure roller.

22. The thermal fixing device as claimed in claim 16, wherein the thermal cutoff unit comprises a housing that contains the heat conductive member and the switch.

23. The thermal fixing device as claimed in claim 16, wherein

the thermal cutoff unit comprises a housing that contains the heat conductive member, and

wherein the switch is disposed separately from the housing.

24. An image forming apparatus comprising:

5 a sheet feeding section configured to feed a sheet; and
an image forming section configured to form an image on the sheet fed by the sheet feeding section,

wherein the image forming section includes a thermal fixing device comprising:

10 a fixing member disposed to be in contact with the sheet;
a heating unit configured to heat the fixing member with power supplied thereto;

a supporting unit configured to movably support the fixing member and to move the fixing member when the fixing member is
15 overheated by the heating unit;

a switch disposed to be in contact with the fixing member when the fixing member is moved by the supporting unit, and configured to mechanically cut off the power supplied to the heating unit when being contacted with the fixing member; and

20 a thermal cutoff unit having a bimetal in which deforms by heat, disposed to face the fixing member, and configured to cut off the power supplied to the heating unit by deformation of the bimetal.

25. The image forming apparatus as claimed in claim 24, wherein

25 the switch mechanically deforms the bimetal to cut off the power

supplied to the heating unit.

26. The image forming apparatus as claimed in claim 24, wherein the switch is configured to become in non-contact with the fixing member when the fixing member is not overheated.

5 27. The image forming apparatus as claimed in claim 24, wherein the fixing member comprises a fixing roller, and

wherein the switch is disposed at a position upstream of the thermal cutoff unit with respect to a rotation direction of the fixing roller.

10 28. The image forming apparatus as claimed in claim 24, wherein the thermal fixing device further comprises a pressing member configured to urge the fixing member towards the switch,

wherein the supporting member comprises a bearing member that allows the pressing member to move the fixing member when
15 the bearing member is softened by the overheat.

29. The image forming apparatus as claimed in claim 28, wherein the pressing member comprises a pressure roller that holds the sheet against the fixing member, and

wherein the switch is configured to be in contact with an
20 opposite side of the fixing device with respect to the pressure roller.

30. The image forming apparatus as claimed in claim 24, wherein the thermal cutoff unit comprises a housing that contains the bimetal and the switch.

25 31. The image forming apparatus as claimed in claim 24, wherein

the thermal cutoff unit comprises a housing that contains the bimetal, and

wherein the switch is disposed separately from the housing.

32. An image forming apparatus comprising:

5 a sheet feeding section configured to feed a sheet; and
an image forming section configured to form an image on
the sheet fed by the sheet feeding section,

wherein the image forming section includes a thermal fixing
device comprising:

10 a fixing member disposed to be in contact with the sheet;
a heating unit configured to heat the fixing member with
power supplied thereto; and

a thermal cutoff unit having a bimetal that is deformed
by heat and exposed toward the fixing member to be in contact
15 therewith without intermediary of air, and configured to cut off
the power supplied to the heating unit by deformation of the
bimetal.

33. The image forming apparatus as claimed in claim 32, wherein
the bimetal is configured to be in direct contact with the fixing
20 member.

34. The image forming apparatus as claimed in claim 32, wherein
the fixing member has a fixation area that is to be in contact
with the sheet, and

wherein the bimetal is configured to be in contact with
25 the fixation area of the fixing member.

35. The image forming apparatus as claimed in claim 32, wherein the thermal fixing device further comprises a supporting unit configured to movably support the fixing member, and

wherein the fixing member is configured to be in contact
5 with the bimetal through the movement thereof due to the overheat, and is configured to cut off the power supplied to the heating unit by contacting with the bimetal.

36. The image forming apparatus as claimed in claim 32, wherein the bimetal is configured to become in non-contact with the fixing
10 member when the fixing member is not overheated.

37. The image forming apparatus as claimed in claim 32, wherein the bimetal comprises a projection configured to be in contact with the fixing member.

38. The image forming apparatus as claimed in claim 32, wherein
15 the thermal fixing device further comprises a pressing member configured to urge the fixing member towards the bimetal and comprises a pressure roller that holds the sheet against the fixing member,

wherein the supporting member comprises a bearing member
20 that allows the pressing member to move the fixing member when the bearing member is softened by the overheat, and

wherein the bimetal is configured to be in contact with an opposite side of the fixing device with respect to the pressure roller.

39. The image forming apparatus as claimed in claim 32, wherein

the bimetal is configured to be in contact with the fixing member through a heat conductive member having a high thermal conductivity.

40. The image forming apparatus as claimed in claim 39, wherein
5 the fixing member has a fixation area that is to be in contact with the sheet, and

wherein the heat conductive member is configured to be in contact with the fixation area of the fixing member.

41. The image forming apparatus as claimed in claim 39, wherein
10 the thermal fixing device further comprises a supporting unit configured to movably support the fixing member, and

wherein the fixing member is configured to be in contact with the heat conductive member through the movement thereof due to the overheat, and is configured to cut off the power supplied
15 to the heating unit by contacting with the heat conductive member.

42. The image forming apparatus as claimed in claim 39, wherein the heat conductive member is configured to become in non-contact with the fixing member when the fixing member is not overheated.

43. The image forming apparatus as claimed in claim 39, wherein
20 the heat conductive member comprises a projection configured to be in contact with the fixing member.

44. The image forming apparatus as claimed in claim 39, wherein the thermal fixing device further comprises a pressing member configured to urge the fixing member towards the switch or the
25 bimetal and comprises a pressure roller that holds the sheet

against the fixing member,

wherein the supporting member comprises a bearing member that allows the pressing member to move the fixing member when the bearing member is softened by the overheat, and

5 wherein the heat conductive member is configured to be in contact with an opposite side of the fixing device with respect to the pressure roller.

45. The image forming apparatus as claimed in claim 39, wherein the thermal cutoff unit comprises a housing that contains the
10 heat conductive member and the switch.

46. The image forming apparatus as claimed in claim 39, wherein the thermal cutoff unit comprises a housing that contains the heat conductive member, and

wherein the switch is disposed separately from the housing.

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